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A JACANA FROM THE PLIOCENE OF FLORIDA (AVES: JACANIDAE)

By Storrs L. Olson
Smithsonian Institution, Washington, D.C. 20560

The seven or eight living species of jacanas (Jacanidae) form a distinctive pantropical charadriiform family, highly specialized for locomotion on floating vegetation. A single genus, *Jacana*, is found in the New World, where it is endemic. Its forms extend from Argentina north through Mexico to southernmost Texas and the Greater Antilles.

The only Tertiary bird ever thought to be related to the Jacanidae was *Rhegminornis calobates* Wetmore from the Lower Miocene of Florida. Wetmore (1943) made this the type of a new family, the Rhegminornithidae, which Brodkorb (1967) later retained as a subfamily of the Jacanidae. The affinities of *Rhegminornis* were subsequently determined to lie with the Meleagrididae in the order Galliformes (Olson and Farrand, 1974). The only remaining fossil record of the Jacanidae is a late Pleistocene occurrence of the living species *Jacana spinosa* in Brazil (Winge, 1888). The discovery of a jacana among the avian material collected at a Middle Pliocene locality in north-central Florida is therefore of considerable interest.

In the present paper, the name *Jacana spinosa* is used in the broad sense to include all living forms of the genus. The populations from western Panama northward (*J. spinosa, sensu stricto*) are often considered specifically distinct from those to the south (*J. jacana*), and the exact nature of the interaction between these forms where they come in contact in Panama is not yet fully understood (Wetmore, 1965). If indeed two species are involved, they are very closely related and certainly constitute a superspecies. The compara-

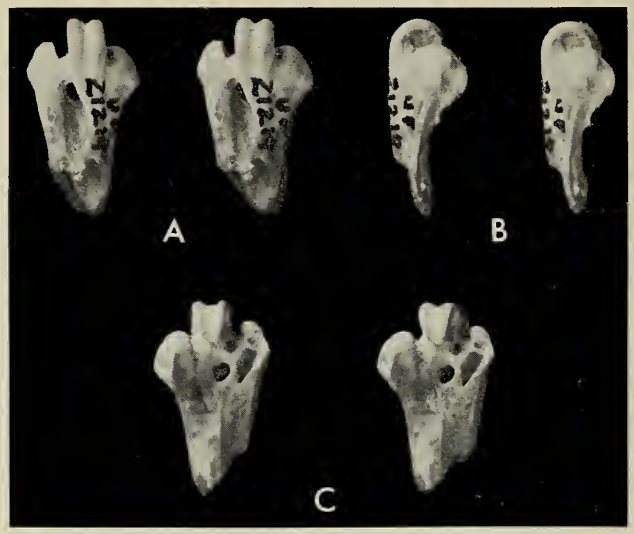

Fig. 1. *Jacana farrandi*, new species, stereo pairs of holotype left tarsometatarsus UF 21219: a, anterior view; b, internal view; c, posterior view. Twice natural size.

tive series of skeletons in this study consisted of 11 males and 6 females of *J. spinosa* from Cuba, Hispaniola, Guatemala, Venezuela, Brazil, and Argentina, as well as specimens of *Actophilornis africanus*, *Metopidius indicus*, and *Hydrophasianus chirurgus*.

Jacana farrandi, new species
Figures 1 and 2

Holotype: Distal end of left tarsometatarsus lacking much of the outer trochlea, Florida State Museum UF 21219.

Locality and horizon: "Rhino Hole," McGehee Farm, 3.6 miles north of Newberry, Alachua County, Florida. Collected by S. David Webb and field crew, April 1967. Alachua Formation, early Hemphillian land mammal stage, Middle Pliocene.

Measurements of holotype: See Table 1.

Paratype: Topotypical left coracoid lacking part of the procoracoid and sterno-coracoidal processes, UF 11108. Collected 4 May 1965 by S. David Webb, Robert Allen, and Jesse S. Robertson.

Etymology: To my friend and sage counsellor in all matters ornithological, John Farrand, Jr., of the American Museum of Natural History, in recognition of his interest in the Jacanidae.

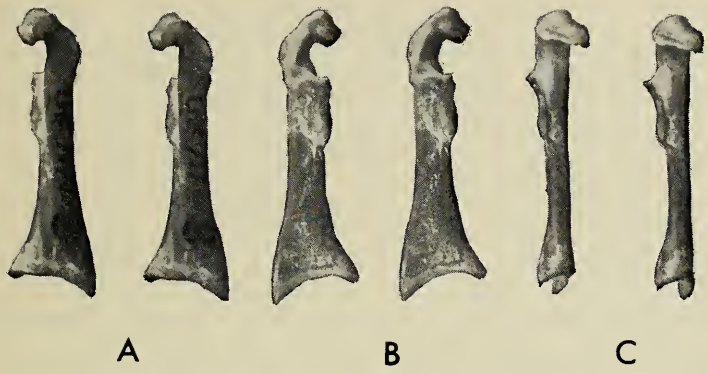

FIG. 2. *Jacana farrandi*, new species, stereo pairs of paratype left coracoid UF 11108: a, ventral view; b, dorsal view; c, internal view. Twice natural size.

Diagnosis and description: The holotype tarsometatarsus is immediately recognizable as that of a jacana by the extremely large distal foramen and the very deep tendinal groove leading to it. The type of *farrandi* agrees with *Jacana* and differs from the other genera examined in having a much deeper pit on the medial surface of the internal trochlea.

The tarsometatarsus of *J. farrandi* differs from that of *J. spinosa* as follows: middle trochlea decidedly longer, projecting farther beyond the internal trochlea and bearing a deeper median groove; in posterior view, area between distal foramen and inner trochlea not deeply excavated as in the modern form; scar for hallux without prominent medial lip; tendinal groove wider and deeper; inner trochlea proportionately wider and deeper, lacking the distinct projection on the proximal corner of the posterolateral surface seen in *J. spinosa*, and with posterior crest more prominent.

The coracoid of *J. farrandi* differs from that of *J. spniosa* as follows: acrocoracoid rotated laterally so that it projects much farther ventrally; furcular facet much narrower with much less of an overhanging ossified lip; protuberance on dorsal surface of sternal end of procoracoid more prominent; neck not as excavated.

Jacana farrandi is distinctly larger than *J. spinosa* (Table 1). In the Jacanidae there is marked sexual dimorphism in size, the females being much larger; in the series of *J. spinosa* used here, there was virtually no overlap in size beween the two sexes (Table 1). The holotype tarsometatarsus of *J. farrandi* is larger than in any of the available specimens of *J. spinosa* and is probably from a female. The paratype coracoid is smaller than in females of *J. spinosa* but larger

TABLE 1. Measurements of *Jacana spinosa* (11 ♂♂, 6 ♀♀) compared with *Jacana farrandi*, new species.

		range	mean	s.d.
Distal width of tarsometatarsus	♂	5.8– 6.5	6.3	0.23
	♀	7.0– 7.5	7.2	0.18
	Fossil	7.8		
Width of middle trochlea	♂	1.9– 2.2	2.0	0.09
	♀	2.2– 2.5	2.3	0.09
	Fossil	2.7		
Depth of middle trochlea	♂	2.6– 2.9	2.7	0.10
	♀	3.1– 3.5	3.3	0.14
	Fossil	3.7		
Distance from distal foramen to distal edge of middle trochlea	♂	3.3– 3.7	3.5	0.12
	♀	3.6– 4.4	3.9	0.27
	Fossil	4.6		
Greatest length of coracoid	♂	18.2–20.1	19.4	0.56
	♀	21.6–23.4	22.7	0.68
	Fossil	20.5		

than in males and is therefore probably from a male. Both specimens thus reflect the larger size of the fossil species.

Remarks: Numerous other vertebrates have been found at the McGehee Farm site (Hirschfeld and Webb, 1968). The most intensively studied of these are tortoises (Auffenberg, 1966), edentates (Hirschfeld and Webb, 1968) and canids (Webb, 1969). Birds previously recorded from this locality include a cormorant *Phalacrocorax wetmorei*, a night heron *Nycticorax fidens*, and a sandpiper *Ereunetes* (= *Calidris*) *rayi* (Brodkorb, 1963). Although Brodkorb's paper refers to the McGehee deposits as being Lower Pliocene, Webb (1969:305) now considers them to be of early Hemphillian (Middle Pliocene) age.

It is difficult to envision a better paleoecological indicator than a jacana. By analogy with living forms, we may assume that the climate in Florida in early Hemphillian time was warm and tropical, probably the year round since jacanas are not migratory. Furthermore, we can be sure that when the remains of *Jacana farrandi* were deposited, not only was fresh water present, but abundant floating vegetation, probably including water lilies (Nymphaeaceae), as well, since all modern jacanas require such a habitat.

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